

HI sent 9/3 cont

rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

REMARKS

I. Introduction

Claims 9 to 20 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Objection to the Drawings and Clarification of Remarks

The drawings were objected to under 37 C.F.R. 1.83(a) as allegedly failing to show the limitation of the vibration damper being constructed for "limiting the formation of vibrations" as allegedly first claimed in claim 9. As an initial matter, claim 9 does not include a recitation of "limiting the formation of vibrations." While Applicants respectfully disagree with the merits of this objection, to facilitate matters, claims 17 to 20 have been amended herein without prejudice to delete the phrase "limiting the formation of vibrations." It is therefore respectfully that this objection has been obviated, and withdrawal of this objection is respectfully requested..

The Final Office Action requests clarification regarding the Remarks of paper no. 22 stating that the vibration damper relates to an element that has no connection to the mass body. This statement relates to a braced mechanical connection. The rubber spring elements are arranged between the tubular mass body 51 and cylindrical sleeve 10 (see page 6, lines 9 to 10) but are not braced via a sleeve against the propeller shaft tube, as specifically pointed out by the Specification on page 3, lines 28 to 29.

III. Rejection of Claims 9 to 20 Under 35 U.S.C. § 112, First Paragraph

Claims 9 to 20 were rejected under 35 U.S.C. § 112, first paragraph as allegedly containing subject matter which was not described in the Specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Final Office Action alleges that given Applicants' Remarks of paper no. 22 that the vibration damper of the present invention relates to an element

that has no connection to the mass body, the present invention fails to include the necessary structure to achieve the function of "limiting the formation of vibrations". Since claims 9 to 16 do not include the phrase "limiting the formation of vibrations," it is respectfully submitted that the present rejection is not applicable to claims 9 to 16. Moreover, as indicated above, claims 17 to 20 have been amended herein without prejudice to delete the phrase "limiting the formation of vibrations." It is therefore respectfully submitted that the present rejection has been obviated, and withdrawal of this rejection is therefore respectfully requested.

As regards the statement in paragraph 3, page 3 of the Final Office Action relating to the rejection of claims 10 and 12 to 16 under 35 U.S.C. § 112, first paragraph that "[c]laims 10 and 12-16 are indefinite due to their dependency from claims 9 and 11, respectively," Applicants respectfully request withdrawal of the rejection of claims 10 and 12 to 16 under 35 U.S.C. § 112, first paragraph for at least the reasons that neither claim 9 nor claim 11 includes the phrase "limiting the formation of vibrations" alleged to lack enablement and that the first paragraph of 35 U.S.C. § 112 does not relate to definiteness of claims.

IV. Rejection of Claims 9 to 16 Under 35 U.S.C. §112, Second Paragraph

Claims 9 to 16 were rejected under 35 U.S.C. § 112, second paragraph as indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention.

Regarding claim 9 and 11, the Final Office Action alleges that the phrase "a space" is indefinite because it is allegedly unclear whether the space is intended to be the same or different from the space claimed in line 2 from the bottom of the claim. Applicants respectfully disagree and submit that the phrase "a space" is not indefinite. The "discrete space" referred to in the ninth line of claim 9 as a space defined by the stop element disposed between the mass body and the sleeve, is clearly different than the "space between each stop element and an adjacent rubber spring element" recited in the twelfth and thirteenth lines of claim 9. As the former relates to a defined discrete space and the latter refers to the total area spanned between each stop element and an adjacent spring element for the purposes of calculating the circumferential angle between these two elements. Notwithstanding the above, claims 9 and 11 have been amended herein without prejudice for clarification purposes and the second recitation of "space" has been

deleted. Claims 9 and 11, as amended, recite a contact surface of each stop element extending over a larger circumferential angle than the spring elements and than between each stop element and each adjacent rubber spring element.

The Final Office Action further alleges that the phrase "an adjacent rubber spring element" in line 12 is indefinite. Claims 9 and 11 have been amended herein without prejudice to incorporate the suggestion provided in the Final Office Action. Accordingly, Applicants submit that claims 9 and 11, as amended herein, obviate the 35 U.S.C. § 112, second paragraph rejection. Therefore, allowance of claims 9 and 11 is respectfully requested.

As for claims 10, and 14 to 16, which ultimately depend from claim 9 and therefore include all of the limitations of claim 9, Applicants submit that these claims are allowable for at least the same reasons provided above in support of the patentability of claim 9.

As for claims 12 and 13, which ultimately depend from claim 11 and therefore include all of the limitations of claim 11, Applicants submit that these claims are allowable for at least the same reasons provided above in support of the patentability of claim 11.

In summary, Applicants submit that claims 9 to 16 fully comply with the requirements of 35 U.S.C. § 112, and withdrawal of this rejection is therefore respectfully requested.

V. Rejection of Claims 9, 15 and 16 Under 35 U.S.C. § 103(a)

Claims 9, 15 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over European Published Patent Application No. 0 748 949 "(using U.S. Patent No. 5,704,597 to Hofmann et al. as an English equivalent)" ("Hofmann et al."). Final Office Action at p. 2. It is respectfully submitted that Hofmann et al. do not render obvious the present claims as amended herein for the following reasons.

Claim 9, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. The vibration damper includes a sleeve, defining a radial and circumferential direction, arranged in the shaft and rotatable with the shaft. A mass body is mounted concentrically in the sleeve. A plurality of rubber spring elements mounts the mass body to the sleeve. A plurality of flexible stop elements are disposed circumferentially between each adjacent pair of spring elements and are disposed between the mass body and the

sleeve to define a discrete space for limiting a vibration travel of the mass body at least in the radial direction. Claim 9, as amended, further recites a contact surface of each stop element extending over a larger circumferential angle than the spring elements and than between each stop element and each adjacent rubber spring element.

Hofmann et al. purport to relate to a radial bearing, particularly for a torque support in motor vehicle engines. According to Hofmann et al., the radial bearing includes an outer sleeve and an inner sleeve which is coaxial with the outer sleeve and is constructed as a bush core. Hofmann et al. state that the inner sleeve is provided on its outer periphery with at least one radially orientated elastomeric body and at least one rubber end stop. Hofmann et al. also state that the rubber end stop is active only after a predeterminable spring deflection of the elastomeric body, and that the inner sleeve also has two mutually opposite elastic carrying bodies, through which the inner sleeve is elastically mounted on the outer sleeve.

Hofmann et al. fail to disclose, or even suggest, a contact surface of each stop element that extends over a larger circumferential angle than the spring elements and than between each stop element and an adjacent rubber spring element, as recited in amended claim 9. This arrangement enables the vibration travel in the central compression direction of a rubber spring element 31, 32 to be only insignificantly greater than in the central compression direction of a stop element 41, 42. Specification at p. 5, lines 7 to 10. In contrast, the flexible stop elements, e.g., the elastomeric bodies 21 and 22, of Hofmann et al. have a contact surface that contacts sleeve 11 over a fairly narrow circumferential angle. This circumferential angle is about equal to the circumferential angle defined by the spring elements, e.g., carrying bodies 17a and 17b, and is much smaller than the circumferential angle defined by the space between the elastomeric body 21, the carrying body 17a and outer sleeve 11.

The Final Office Action alleges that the radially outermost surface of top and bottom elements 21 is a contact surface and that this contact surface extends over a larger circumferential angle than the radially innermost space between the stop element and the adjacent spring element. The Final Office Action thus concludes that Hoffman et al. disclose stop element contact surfaces that extend over a larger circumferential angle than a space between each stop element and adjacent spring element, as recited in claim 9. Applicants submit that this

reasoning reflects a misunderstanding of the term circumferential angle. The Final Office Action discusses lengths while claim 9 recites a limitation relating to a circumferential angle. The Final Office Action seems to be stating that the radial innermost circumferential length between the stop element and the spring element is smaller than the circumferential length spanned by the stop element. Applicants submits that even if this is the case it has nothing to do with whether the stop element contact surfaces extends over a larger circumferential angle than that between each stop element and each spring element, as recited in amended claim 9. Applicants further submit that the circumferential angle defined by the space between each stop element and adjacent spring element is not ascertained by looking at the length of the radially innermost space between the stop element and adjacent spring element, but rather by ascertaining the circumferential angle swept by either one of the stop element and spring element as they are brought towards each other like the arms of a clock. Claim 9 requires the comparison of this angle with the circumferential angle of the contact surface which is ascertained by sweeping the two sides of the stop element towards each other. Nowhere do Hofmann et al. disclose, or even suggest, stop element contact surfaces that extend over a larger circumferential angle than between each stop element and adjacent spring element, as recited in amended claim 9. Accordingly, Hofmann et al. do not disclose all of the limitations of amended claim 9.

Notwithstanding the above, claim 9 has been amended to recite a rotatable tubular propeller shaft and a sleeve arranged in the shaft and rotatable with the shaft. Applicants submit that outer sleeve 11 of Hofmann et al. is fixed to fastening part 14 which in turn is fastened to an automobile. See col. 3, lines 63 to 67. Accordingly, Hofmann et al. do not disclose, or even suggest, a sleeve arranged in a shaft and rotatable with said shaft, as recited in amended claim 9. Accordingly, Hofmann et al. do not disclose, or even suggest, all of the limitations of amended claim 9.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). As established above, Hofmann et al. do not disclose, or even suggest, a sleeve

arranged in and rotatable with a rotatable shaft or stop element contact surfaces that extend over a larger circumferential angle than between each stop element and adjacent spring element, as recited in amended claim 9. It is therefore respectfully submitted that Hofmann et al. do not render amended claim 9 unpatentable. Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of amended claim 9 is respectfully requested.

As for claims 15 and 16, which ultimately depend from amended claim 9, and therefore include all the limitations of amended claim 9, it is respectfully submitted that these dependent claims are allowable for at least the same reasons given above in support of the patentability of amended claim 9. In re Fine, 837 F.2d 1071 (Fed. Cir. 1988) (any dependent claim that depends from a non-obvious independent claim is non-obvious).

VI. Rejection of Claims 9 to 12 and 17 to 20 Under 35 U.S.C. § 103(a)

Claims 9 to 12 and 17 to 20 were rejected under 35 U.S.C. § 103(a) as unpatentable over British Published Patent Application No. 1 341 087 ("GB '087") in view of U.S. Patent No. 4,971,456 ("Hori"). It is respectfully submitted that the combination of GB '087 and Hori does not render obvious the present claims as amended herein for the following reasons.

A. Claims 9, 11 and 17

Claim 9, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. The vibration damper includes a sleeve, defining a radial and circumferential direction, arranged in the shaft and rotatable with the shaft. A mass body is mounted concentrically in the sleeve. A plurality of rubber spring elements mounts the mass body to the sleeve. A plurality of flexible stop elements are disposed circumferentially between each adjacent pair of spring elements and are disposed between the mass body and the sleeve to define a discrete space for limiting a vibration travel of the mass body at least in the radial direction. Claim 9, as amended, further recites a contact surface of each stop element extending over a larger circumferential angle than the spring elements and than between each stop element and each adjacent rubber spring element.

Claim 11, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. Amended claim 11

recites that the vibration damper includes a sleeve defining a radial and circumferential direction, a mass body mounted concentrically in the sleeve and a plurality of rubber spring elements for mounting the mass body to the sleeve. The sleeve is arranged in the shaft and is rotatable with the shaft. At least one of the mass body and the sleeve at least partially form, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction. The stop elements define discrete spaces and extend over a larger circumferential angle than the spring elements. Claim 11, as amended, further recites a contact surface of each stop element extending over a larger circumferential angle than the spring elements and than between each stop element and each adjacent rubber spring element.

Claim 17, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. Amended claim 17 recites that the vibration damper includes a rotatable propeller shaft that defines a radial and a circumferential direction. A mass body is arranged concentrically in the propeller shaft. A plurality of rubber spring elements mount the mass body to the propeller shaft. A plurality of stop elements limit a vibration travel of the mass body at least in the radial direction. The stop elements are disposed between the mass body and the propeller shaft and circumferentially between each adjacent pair of rubber spring elements so as to define a discrete space. The stop elements include at least one of metal or rubber.

GB '087 purports to relate to an intermediate shaft bearing assembly in a motor vehicle that includes a resiliently deformable body located between two concentric rigid annular members. Page 1, lines 34 to 36. The rigid outer member is secured against rotation, and the rigid inner ring accommodate a bearing for a shaft. Page 1, lines 36 to 39. The deformable body consists of a plurality of peripherally distributed web members which connect the two rigid rings to each other. Page 1, lines 39 to 43. Resilient abutments are attached to one of the rings between the web members. Page 1, lines 43 to 45. The surface of each abutment which faces the other ring is at a distance from the other rigid ring. Page 1, lines 45 to 47.

Hori purports to relate to a fluid-filled elastic center bearing mount. Hori states that an elastic body includes a pair of integrally formed elastic

protrusions 32, which protrude a suitable distance radially outwardly into respective third and fourth pockets 26, 27. Col. 5, lines 18 to 21. Hori further states that the elastic body 16 includes a pair of integrally formed elastic stops 34, which protrude a suitable distance into the respective first and second pockets 24, 25. Col. 5, lines 31 to 33. Hori states at col. 7, lines 48 to 51 that the elastic stops 34 serve to protect the elastic body 16 from an excessive amount of elastic deformation when the mount 10 receives vibrations of a considerably large magnitude.

The Final Office Action reiterates that GB '087 shows flexible stop elements 17 disposed between mass body 14, 19 and sleeve 10 to define a discrete space shown in the area of element number 20. However, the Final Office Action seems to be focusing on the allegation that GB '087 shows flexible stop elements 17 as opposed to the issue of whether GB '087 discloses discrete spaces, as recited in claims 9, 11 and 17.

Figure 1 of the present application illustrates discrete spaces 45 defined between the flexible rubber stop elements 41, 42 and the sleeve 10 or the body mass 51. Each discrete space 45 is defined by a pair of adjacent spring elements, a stop element, and either the sleeve or the mass body. Figure 1 illustrates 4 discrete spaces. It is clear that if the spring elements, which separate the discrete spaces, do not axially extend the full length of the sleeve than the spaces become interconnected and lose their discrete quality. This is the case in GB '087 as can best be seen Figure 2 thereof. Given the length of the sleeve 12, spaces on either side of stopper element 17 are formed. These spaces interconnect the allegedly "discrete" spaces formed between adjacent web or spring members 16. Accordingly, GB '087 does not disclose, or even suggest, "discrete spaces", as recited in claims 9, 11 and 17. Therefore, Applicants respectfully submit that claims 9, 11 and 17 are patentable over the combination of GB '087 and Hori.

Notwithstanding the above, claims 9 and 11 have been amended without prejudice to recite a rotatable tubular propeller shaft and a sleeve arranged in the shaft and rotatable with the shaft. Applicants submit that outer rigid ring part 10 of GB '087 is stated to be secured against rotation on a rigid vehicle part, see page 2, lines 33 to 40, and outer sleeve 14 of Hori is stated to be secured to a vehicle body, see col. 4, lines 23 to 25. Accordingly, GB '087 and Hori do not disclose, or even suggest, a sleeve arranged in a shaft and rotatable with said shaft,

as recited in amended claims 9 and 11. Therefore, GB '087 and Hori do not disclose, or even suggest, all of the limitations of amended claims 9 and 11.

Claim 17 has been amended herein without prejudice to recite a rotatable propeller shaft having a mass body concentrically arranged therein. Bearing mount 10 in Hori is stated to support a propeller shaft which is disposed within bearing mount 10. See col. 4, lines 19 to 25. Accordingly, Hori does not disclose, or even suggest, a mass body arranged in a shaft, as recited in amended claim 17. Furthermore, the rigid inner ring in GB '087 is stated to house a bearing for a shaft. See page 1, lines 19 to 20. Accordingly, the shaft of GB '087 is disposed within the bearing and not vice versa. GB '087 does not disclose, or even suggest, a mass body arranged in a shaft, as recited in amended claim 17. Therefore, GB '087 and Hori do not disclose, or even suggest, all of the limitations of amended claim 17.

As established above, the combination of GB '087 and Hori does not disclose, or even suggest, stop elements which define discrete spaces and extend over a larger circumferential angle than the spring elements, as recited by claims 9, 11 and 17, or a sleeve arranged in a shaft and rotatable with said shaft, as recited in amended claims 9 and 11, or a mass body arranged in a shaft, as recited in amended claim 17. Therefore, withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of claims 9, 11 and 17 is respectfully requested.

As for claims 10 and 14 to 16, which ultimately depend from claim 9 and therefore include all of the limitations of claim 9, Applicants respectfully request allowance of these claims and submit that these claims are patentable for at least the same reasons asserted above in support of the patentability of claim 9.

As for claims 12 and 13, which directly depend from claim 11 and therefore include all of the limitations of claim 11, Applicants respectfully request allowance of these claims and submit that these claims are patentable for at least the same reasons asserted above in support of the patentability of claim 11.

The Final Office Action admits that GB '087 does not specifically disclose the limitation of the elastic spring elements being composed of rubber and does not disclose the limitation wherein the stop elements extend over a larger circumferential angle than the spring elements. Final Office Action at p. 6. The Final Office Action alleges, however, that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the stop

elements and spring elements of GB '087 to have included stop elements extending over a larger circumferential angle than the spring elements, as allegedly taught by Hori, in order to provide more radial flexibility in the damper since the stops are spaced a distance away from one of the sleeve and mass body. Final Office Action at pages 6 to 7. Applicants respectfully disagree for the following reasons.

Hori purportedly discloses a bearing mount having opposing fluid-filled chambers or pockets. See Abstract. Vibrations are stated to be damped by motion of fluid from pocket to opposing pocket through an orifice. See col. 2, lines 66 to 68 and col. 3, lines 1 to 4. Stop 34 is designed to accommodate this fluid motion. For example, stop 34 does not interfere with the fluid motion because its height is stated to be considerably smaller than the depth of the pocket or chamber 24, 25. See col. 5, lines 35 to 41. Furthermore, stop 34 is designed circumferentially large enough to accommodate holes 38 for fluid passage into passage 40. See col. 5, lines 48 to 56 and Figure 1. It is clear from the above that stop 34 is specifically designed to work in a system which dampens vibration via shuttling of fluid motion from pocket to opposing pocket.

The "problem confronted by the inventor must be considered in determining whether it would have been obvious to combine the references in order to solve the problem." See, Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 679 (Fed. Cir. 1998). Applicants submit that a person skilled in the art, attempting to design a vibration damper for a tubular propeller shaft, having "discrete" spaces, and thus not having communicating fluid-filled pockets, would not look to the stop element design as disclosed by Hori, to improve the bearing assembly disclosed by GB '087, which does not include fluid-filled pockets. Accordingly, it would not have been obvious for one skilled in the art to increase the circumferential angle of the stop element of GB '087 in view of the stop element in Hori. This is because, as stated above, even if the stop element in Hori does extend over a larger circumferential angle than the spring element in Hori, it would not have been obvious to incorporate a design element, seemingly designed to synergize with a fluid-filled damping system, into a tubular propeller shaft, having "discrete" spaces, and thus not having communicating fluid-filled pockets.

Applicants submit that a person skilled in the art would not look to a stop element in a fluid filled bearing system, such as Hori, for design disclosure regarding the circumferential angle of the stopping element in a vibration damper for a tubular

propeller shaft not having communicating fluid-filled pockets. Accordingly, Applicants submit that claims 9, 11 and 17 are patentable over the combination of GB '087 and Hori. Therefore, withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of claims 9, 11 and 17 is respectfully requested.

B. Claims 18 to 20

Claim 18, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle including a rotatable propeller shaft defining a radial and a circumferential direction. Claim 18 recites a mass body arranged concentrically in the propeller shaft. A plurality of rubber spring elements mount the mass body to the propeller shaft. At least one of the mass body and the propeller shaft at least partially form, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

Claim 19, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. Claim 19 recites that the vibration damper includes a rotatable propeller shaft defining a radial and a circumferential direction. A mass body is arranged concentrically in the propeller shaft. A plurality of rubber spring elements mount the mass body to the propeller shaft. The mass body at least partially forms, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

Claim 20, as amended, relates to a vibration damper for a rotatable tubular propeller shaft in the drive train of a motor vehicle. Claim 20 recites that the vibration damper includes a propeller shaft defining a radial and a circumferential direction. A mass body is arranged concentrically in the propeller shaft. A plurality of rubber spring elements mount the mass body to the propeller shaft. The propeller shaft at least partially forms, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration

travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

Applicants submit that the combination of GB '087 and Hori does not render obvious claims 18 to 20 for at least the reason that the combination of GB '087 and Hori fails to disclose, or even suggest, that at least one of a mass body and a propeller shaft at least partially form a plurality of stop elements. With respect to quadrant IV of Figure 1 of the present application, there is illustrated a mass body 53 that has the cross-section of a four sided polygon, wherein the exposed polygon regions lie opposite the open undulation troughs 16 of sleeve 15. Specification at p. 6, lines 1 to 3. Thus, it is the shape of either the mass body 53 and the sleeve 15 that enables at least one of the mass body 53 or the sleeve 15 to form, and to function as, a stop element, and a separate rubber stop element is not required to be disposed there between. In contrast, the mass bodies and sleeves of both GB '087 and Hori have circular cross-sections that do not form part of a stop element, but instead employ rubber stop elements disposed between the mass bodies and the sleeves for this purpose. Thus, neither GB '087 nor Hori discloses, or even suggests, that the mass body or a propeller shaft at least partially form a plurality of stop elements.

The Final Office Action alleges that the outermost surfaces of GB '087 mass body portion 19 in the areas adjacent to space 20 form stop elements since under great force the outermost surfaces of mass body portion 19 would abut against the bottom surfaces of element 17 which is connected to sleeve 10. Applicants submit that it is unreasonable to refer to the outermost surfaces of mass body portion 19 as a stop element. Regardless of the magnitude of force applied, stop element 17 remains between sleeve 12 and mass body portion 19, thus, preventing mass body portion from making direct contact with sleeve 12, i.e., taking on the role of a stop element. Accordingly, Applicants submit that claims 18 to 20 are patentable over the combination of GB '087 and Hori. Therefore, withdrawal of the 35 U.S.C. § 103(a) of claims 18 to 20 is respectfully requested.

Notwithstanding the above, claims 18 to 20 have been amended to recite a rotatable propeller shaft having a mass body concentrically arranged therein. As stated above, bearing mount 10 in Hori is stated to support a propeller shaft

which is disposed within bearing mount 10. See col. 4, lines 19 to 25. Accordingly, Hori does not disclose a mass body arranged in a shaft, as recited in amended claims 18 to 20. Furthermore, the rigid inner ring in GB '087 is stated to house a bearing for a shaft. Therefore, the shaft of GB '087 is disposed within the bearing (see page 1, lines 19 to 20) and GB '087 does not disclose a mass body arranged in a shaft, as recited in amended claims 18 to 20. Accordingly, GB '087 and Hori do not disclose all of the limitations of amended claims 18 to 20.

In summary, since the combination of GB '087 and Hori does not disclose, or even suggest, all of the limitations of claims 9, 11 and 17 to 20 as more fully set forth above, it is respectfully submitted that the combination of GB '087 and Hori does not render obvious claims 9, 11 and 17 to 20. Withdrawal of the 35 U.S.C. § 103(a) rejection and allowance of claims 9, 11 and 17 to 20 is therefore respectfully requested.

VII. Rejection of Claim 13 Under 35 U.S.C. § 103(a)

Claim 13 was rejected under 35 U.S.C. § 103(a) as unpatentable over GB '087 in view of Hori, as applied to claim 11, and further in view of French Published Patent Application No. 2,720,132 ("Michel"). It is respectfully submitted that the combination of GB '087, Hori and Michel does not render obvious claim 13 for the following reasons.

Claim 13 depends from claim 11 and therefore includes all of the limitations of claim 11. Since claim 13 depends from independent claim 11, and since Michel does not cure the critical deficiencies of GB '087 and Hori, as more fully described above, it is respectfully submitted that claim 13 is allowable for at least the same reasons provided above in support of the patentability of claim 11. In re Fine, supra.

VIII. Rejection of Claim 14 Under 35 U.S.C. § 103

Claim 14 was rejected under 35 U.S.C. § 103(a) as unpatentable over GB '087 in view of Hori, as applied to claim 9, and further in view of U.S. Patent No. 4,988,071 ("Shimazaki et al."). Claim 14 depends on claim 9 and therefore includes all of the limitations of claim. Applicants submit that claim 14 is allowable for the at least the same reasons provided above in support of the patentability of claim 9, In re Fine, supra, as well as for the following reasons.

Shimazaki et al. purportedly relates to a mounting mechanism for connecting a compressor of an automotive air conditioning system to an automobile engine through a mounting bracket. See Abstract.

Claim 14 relates to a vibration damper. Claim 14 recites a propeller shaft mounted concentrically with a sleeve first tube segment. Nowhere in Shimazaki et al. is there disclosure of a propeller shaft mounted concentrically with a sleeve, as recited in claim 14.

The Final Office Action alleges that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the vibration damper of GB '087 to include a propeller shaft concentric with the sleeve, as purportedly taught by Shimazaki et al., in order to provide a means of connecting the sleeve to a drive train of a motor vehicle. However, as stated above Shimazaki et al. do not disclose, or even suggest a propeller shaft mounted concentrically with a sleeve, as recited in claim 14. The Final Office Action refers to elements 21 and 211 as shafts, however, element 21 is a compressor and element 211 is a flange. See, for example, col. 3, line 40 and col. 4, line 12. Accordingly, Applicants submit that claim 14 is patentable over the combination of GB '087, Hori and Shimazaki et al. and allowance of this claim is, therefore, respectfully requested.

IX. Conclusion

Attached hereto is a marked-up version of the changes made to the claims by the current Reply Under 37 C.F.R. §1.116. The attached pages are captioned **"Version with Markings to Show Changes Made."**

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

KENYON & KENYON

Dated:

March 28, 2003

By:

Richard L. Mayer
Richard L. Mayer
Reg. No. 22,490
B.N. 42,194

One Broadway
New York, New York 10004
(212) 425-7200

CUSTOMER NO. 26646



26646

PATENT TRADEMARK OFFICE

Version with Markings to Show Changes Made

IN THE CLAIMS:

Claims 9, 11 and 17 to 20 have been amended, without prejudice, as follows:

9. (Four Times Amended) A vibration damper for a rotatable tubular propeller shaft in ^a the drive train of a motor vehicle, the vibration damper comprising:

a sleeve arranged in the shaft and rotatable with the shaft, the sleeve defining a radial and circumferential direction;

a mass body mounted concentrically in the sleeve;

a plurality of rubber spring elements for mounting the mass body to the sleeve; and

a plurality of flexible stop elements disposed circumferentially between each adjacent pair of spring elements and disposed ^{in an arc} between the mass body and the sleeve to define a discrete space to limit a vibration travel of the mass body at least in the radial direction, wherein a contact surface of each stop element extends over a larger circumferential angle than the spring elements and than ^{a gap? (change spec.)} [a space] between each stop element and ^{the d.s.c.} [an] each adjacent rubber spring element, such that each stop element occupies a large portion of ^{the d.s.c.} a space between the mass body, the spring elements and the sleeve.

11. (Thrice Amended) A vibration damper for a rotatable tubular propeller shaft in ^a the drive train of a motor vehicle, the vibration damper comprising:

a sleeve arranged in the shaft and rotatable with the shaft, the sleeve defining a radial and circumferential direction;

a mass body mounted concentrically in the sleeve;

a plurality of rubber spring elements for mounting the mass body to the sleeve; and

wherein at least one ^{of} the mass body and the sleeve at least partially form, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, wherein the stop elements define discrete spaces and wherein a contact surface of each stop element extends over a larger circumferential angle

Version with Markings to Show Changes Made

than the spring elements and than [a space] between each stop element and [an] each adjacent rubber spring element.

4/10/24

17. (Four Times Amended) A vibration damper for [limiting the formation of vibrations in] a rotatable tubular propeller shaft in the drive train of a motor vehicle, the vibration damper comprising:

a rotatable propeller shaft, the propeller shaft defining a radial and a circumferential direction;

a mass body arranged concentrically in the propeller shaft;

a plurality of rubber spring elements for mounting the mass body to the propeller shaft; and

a plurality of stop elements configured to limit a vibration travel of the mass body at least in the radial direction, the stop elements being disposed between the mass body and the propeller shaft and circumferentially between each adjacent pair of rubber spring elements so as to define a discrete space, the stop elements including at least one of metal or rubber.

18. (Thrice Amended) A vibration damper for [limiting the formation of vibrations in] a rotatable tubular propeller shaft in the drive train of a motor vehicle, the vibration damper comprising:

a rotatable propeller shaft defining a radial and a circumferential direction;

a mass body arranged concentrically in the propeller shaft; and

a plurality of rubber spring elements for mounting the mass body to the propeller shaft;

wherein at least one of the mass body and the propeller shaft at least partially form, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

Version with Markings to Show Changes Mad

19. (Thrice Amended) A vibration damper for [limiting the formation of vibrations in] a rotatable tubular propeller shaft in the drive train of a motor vehicle, the vibration damper comprising:

- a rotatable propeller shaft defining a radial and a circumferential direction;
- a mass body arranged concentrically in the propeller shaft; and
- a plurality of rubber spring elements for mounting the mass body to the propeller shaft;

wherein the mass body at least partially forms, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.

20. (Thrice Amended) A vibration damper for [limiting the formation of vibrations in] a rotatable tubular propeller shaft in the drive train of a motor vehicle, the vibration damper comprising:

- a rotatable propeller shaft defining a radial and a circumferential direction;
- a mass body arranged concentrically in the propeller shaft; and
- a plurality of rubber spring elements for mounting the mass body to the propeller shaft;

wherein the propeller shaft at least partially forms, in circumferentially opposite regions between the rubber spring elements, a plurality of stop elements configured to limit a vibration travel of the mass body in at least the radial direction, such that a vibration travel in a central compression direction of the plurality of rubber spring elements is insignificantly greater than in the central compression direction of the plurality of stop elements.